BRINGING THE GERMAN HUMAN BIOMONITORING SYSTEM INTO LINE WITH REACH - ARE GERMAN ENVIRONMENTAL SURVEY (GERES) AND ENVIRONMENTAL SPECIMEN BANK (ESB) APPROPRIATE TOOLS?

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Background and Aims
The German population is still substantially exposed to chemicals. This can be demonstrated for chemicals some of which have already been banned, restricted or cannot be further regulated because of their geogenic origin. Exposure levels, their sources and development over time are well documented by the German human biomonitoring (HBM) system consisting of the German Environmental Survey (GerES) and the Environmental Specimen Bank (ESB). While in the past outdoor air and drinking water were particularly important, today's exposure of the German population is mainly due to nutrition, indoor air, the broad variety of consumer products, body-care products, and cosmetics. Thus, not only the importance of the exposure pathways changed, but also the chemicals of concern. However, even if being banned decades ago, exposure levels of persistent chemicals like DDT or PCB as well as carcinogenic substances difficult to prevent emphasise the necessity of continuously monitoring persistent, accumulating or carcinogenic substances in humans and the environment.
Methods: Germany started a joint activity on enhancing HBM aiming at identifying and measuring current substances of possible concern regarding health impacts or potentially frequent occurrence in the population. Background, motivation, and status of this project will be presented.
Results: Three out of six chemicals to be banned from 2014 due to REACh regulations were identified as relevant chemicals by the German HBM system: As demonstrated by GerES data exposure to the phthalates DEHP, BBP and DBP exceeded tolerable daily intakes in a considerable fraction of children living in Germany. Musk fragrances, diaminodiphenylmethane (MDA), and flame retardant HBCDD are heading the project's elaborated priority-list for HBM methods to be developed.
Conclusions: The new HBM methods will help a) prioritizing substances of concern with regard to their occurrence in humans and the environment, b) following up efficiency of REACh as well as c) optimizing assessment requirements.